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January 19, 2005

Mr. Brian Kelly
Field Supervisor
Wyoming Field Office
U.S. Fish and Wildlife Service
Ecological Services
4000 Airport parkway
Cheyenne, WY 82001

Dear Mr. Kelly:

RE: Response to U.S. Fish and Wildlife Service (Service) Comments on Draft Environmental Assessment for the Proposed Clipper Windpower, Inc. Low Wind Speed Turbine Demonstration Project, Carbon County, Wyoming. DOE/EA-1516

Pursuant to your comment letter to Mr. Steve Blazek dated January 6, 2005, please accept this letter as the Department of Energy's (DOE's) response to your comments concerning the above referenced Draft Environmental Assessment (DEA). Our responses are presented in the same order as your comments.

USFWS Comment 1.

General Comment: The U.S. Fish and Wildlife Service (Service) understands the need to determine the economic and technical feasibility of the Clipper wind turbine design in order to explore possible opportunities for reducing costs over the current wind turbine configurations. However, we strongly encourage the Department of Energy (DOE) to incorporate measures to avoid and/or minimize effects to wildlife and their habitats. These efforts should be an integral part of project planning. To assist in project planning the Service has issued *Interim Guidance on Avoiding and Minimizing Impacts to Wildlife from Wind Turbines* (Guidance). The Guidance document can be found at the following website http://www.fws.gov/r9dhcbfa/wind/pdf .

DOE Response to Comment 1.

DOE is very concerned about minimizing potential environmental impacts of the proposed Clipper Low Wind Speed Demonstration project and takes its regulatory responsibilities seriously. Clipper Windpower Inc. (Clipper) has used the Service Guidance document in the planning phase of this project and the preparation of the DEA.

As a result, several potential sites for the proposed project were evaluated by Clipper and eliminated from detailed analysis in the DEA because they ran contrary to many of the siting recommendations presented in the Service Guidance and would have resulted in more potential environmental impacts than the proposed project. Clipper determined the best available site by identifying potential project areas that conform to as many of the siting recommendations presented in the Service Guidance document as possible, while still meeting other technical, economic, and administrative restrictions.

In particular, DOE wants to draw special attention to Site Development Recommendations 1-10 presented in the Service Guidance document. Specifically, Clipper has avoided placement of the wind turbine in documented locations of any species protected under the federal *Endangered Species Act* as outlined in Recommendation #1 (see Sections 3.2.4 and 4.4.1 of the DEA). In addition, there are no known raptor nests within 1.0 mi of the proposed project site and only 5 nests/eyries within 2 mi of the proposed project site. Clipper has also avoided placement of the wind turbine in known local migratory pathways, known daily movement flyways (e.g. between roosting and feeding areas), or in areas where birds typically concentrate, such as wetlands (Recommendation #2). Clipper has also avoided placement of the wind turbine in known bat hibernation, breeding, maternity/nursery colonies, migration corridors, flight paths between colonies, or feeding areas (Recommendation #3). In addition, as stated in the DEA, the proposed wind turbine site avoids areas or features known to attract raptors such as cliff/rim edges, buttes, mountains, or prairie dog colonies (Recommendation #4). To further delineate wildlife use of the proposed site and any impacts associated with the proposed turbine, the applicant-committed measures include surveying of avian (raptor and passerine) use of the site along with mortality surveys associated with the turbine and meteorological tower. Please note that Clipper would be contractually bound to all committed to measures as a condition of Federal funding.

The Service Guidance document also recommends that wind turbines: be grouped together rather than spreading them widely (Recommendation #5); avoid fragmenting large contiguous tracts of land (Recommendation #6); and minimize roads, fences, and other infrastructures (Recommendation #8). As noted in the DEA, the proposed wind turbine site meets all of these criteria. The proposed wind turbine site would be grouped with the immediately adjacent (within 800 ft) existing Medicine Bow WindFarm and as a result, Clipper would be able to utilize the existing infrastructure (e.g., roads, powerlines, etc) from the Medicine Bow Wind Farm. In addition, the project would result in less than 10 acres of total new disturbance (including 8.45 acres of temporary disturbance and 1.25 acres of life-of-project disturbance). As recommended in the Service Guidance document (Recommendation #5), the proposed project would also implement appropriate storm water pollution prevention measures that do not create attractions for birds and maintain contiguous habitat for area-sensitive species. The Service Guidance document also recommends the development of a habitat restoration plan that avoids or minimizes negative impacts on vulnerable wildlife while maintaining and enhancing wildlife habitat values for other species (Recommendation #9). The proposed restoration plan included in the DEA would reclaim and revegetate the site to pre-disturbance conditions thereby meeting this objective.

Clipper has met the majority of the site development recommendations discussed in the Service Guidance document and has minimized potential impacts wherever practical. Unfortunately, Clipper was unable to site the proposed wind turbine more than 5 mi from known greater sage-grouse leks (Recommendation #7). As illustrated in the DEA, there are four known greater sage-grouse leks within 5 mi of the proposed wind turbine site. The two closest leks are located 0.5 and 0.7 mi south of the proposed wind turbine site. Based on Wyoming Game and Fish Department monitoring, these leks have had no attendance from 1999 through 2004. It is possible that these leks may have been impacted by natural degradation of the local sagebrush habitat or the existing Medicine Bow Wind Project and may have been abandoned. Construction of the proposed wind turbine would also be completed prior the breeding season and construction activities should not interfere or disturb any greater sage-grouse that may utilize the leks during the breeding season. The Wyoming Game and Fish Department (WGFD) will continue to monitor these leks for attendance to determine their future status. This information is presented in the DEA. Clipper has attempted to locate the proposed wind turbine as far away as possible from greater sage-grouse leks, and as stated in the DEA, the proposed wind turbine is expected to have minimal additional impacts on greater sage-grouse.

In Summary, DOE has reviewed Clipper's use of the Site Development Recommendations presented in the Service Guidance document. DOE has determined that Clipper has made a good-faith effort to meet the voluntary recommendations and has proposed a site for the demonstration wind turbine that minimizes disturbance and potential impacts to all wildlife species.

USFWS Comment 2.

> Page ii, Executive Summary: The DEA states that the wind energy company will monitor impacts to bats and avian species by conducting mortality surveys during the first 12 months of operation of the Clipper wind turbine. *Determining post-construction survey and monitoring needs should be based on the results of pre-construction baseline surveys. Monitoring efforts may be cursory in areas where recorded pre-construction use by bats and/or avian species is low. However, it may be necessary to conduct intensive monitoring in areas of documented high use. For this reason the Service recommends that the company collect pre-disturbance baseline wildlife information to evaluate the site for its importance to bats and avian species. Surveys should be conducted by a qualified biologist during the appropriate time of year to observe activities related to courtship, nesting, rearing of young, foraging, and migrating.*

DOE Response to Comment 2.

DOE agrees with the Service that pre-construction monitoring may be warranted in areas that receive high use by bats and/or avian species. In the same light, DOE also agrees that pre-construction monitoring is likely not warranted in areas that receive low use by bats and/or avian species. Based on analysis conducted by TRC-Mariah, it is DOE's

opinion that the bat and/or avian species use of the project area is low. This position is based on the fact that the project area has been utilized for wind energy projects for more than 20 years, relevant bat and avian information has been collected from other projects conducted in the general area including the Foote Creek and Simpson Ridge Wind Farm projects, and the Carbon Basin Coal Mine project, and the lack of known important habitats such as nesting and breeding areas, migration routes, sensitive habitats (wetlands) for bats and/or avian species within or near the project area. Mr. David Young, Jr. with Western EcoSystems Technology, Inc. (WEST) (of Cheyenne, Wyoming) and project biologist for bat and avian studies that were conducted at the Foote Creek Rim Windpower Project, agrees that pre-construction monitoring would not be very useful given the very small project area, the specific habitats near the project area, and the existence of the Medicine Bow Wind Farm Project (personal communication between Scott Kamber, TRC-Mariah and David Young, WEST, January 7, 2005).

Mr. Young also noted that the result of pre-construction monitoring conducted at the Foote Creek Rim Windpower Project did not correlate with the results from post-construction bat and avian species mortality surveys conducted for the same area (personal communication, Kamber/Young January 7, 2005). For example, as noted in Young et al. (2003) golden eagle use of the Foote Creek Rim wind farm represented 40% of all documented raptor use of the study area. Utilizing the pre-construction use survey method to predict impacts and mortalities, it would have been logical to predict that golden eagles would represent approximately 40% of the mortalities. However, no golden eagle mortalities were recorded during the 3.5-year study period. Like wise, American kestrels accounted for only 5% of the total raptor use of the study area, but they accounted for 60% of the raptor mortalities. It may be useful for the Service to review this research that was conducted within 10 mi of the proposed project area. Copies of Young et al. (2003) can be obtained at http://www.west-inc.com/wind_reports.php.

As result of this apparent low use of the project area by bats and/or avian species, it is DOE's professional opinion that pre-construction bat and avian use surveys of the project area are not necessary or warranted for this project. However, despite the low use of the project area by bats and/or avian species, DOE would require, Clipper to conduct post-construction mortality surveys for bats and avian species during the first 12 months of operation. DOE contends that the post-construction monitoring is justified and important to document actual impacts to bat and/or avian species due to the operation of the larger Clipper wind turbine. DOE would also require Clipper to conduct raptor and passerine bird use surveys at the project site during the first 12-month period of operation using methods and protocols present go in Thorias et al. (1997) and used at the nearby Foote Creek Rim Windpower Project. All surveys would be conducted by qualified Biologists. Detailed survey methods would be included in a survey protocol document to be prepared for the project and submitted to DOE, USFWS for review and comment.

USFWS Comment 3.

Page iii, Executive Summary: The DEA states that the proposed Clipper wind turbine site is immediately adjacent to the existing Platte River Power Authority-Medicine Bow Wind Farm (PRPA). It also state that the proposed Clipper wind turbine would likely result in the mortality of 6.7 bats per year, 0.15 raptors per year, and 15.4 passerine birds per year. *The Service recommends that the DEA include detailed information regarding the methods in which these numbers were obtained. Additionally, we recommend an in-depth discussion of the mortality that may be expected from a fully developed wind farm with this specific type of turbine.*

DOE Response to Comment 3.

Detailed information regarding the methods used to estimate bat and avian mortality is currently included in Section 4.8.1 of the DEA. Additional detail is provided in the Errata document, which is a component of the Final EA.

In addition, the Proposed Action is only for the construction and operation of the single Clipper demonstration wind turbine and as stated in the DEA, there are no reasonably foreseeable plans to place more wind turbines at this site. If additional federally-funded turbines were to be located at this site, additional environmental analysis would likely be conducted. Therefore, this portion of the Service comment is outside the scope of this NEPA analysis.

USFWS Comment 4

Page 12, 2.1.2 Construction and Installation Phase, paragraph 4. The DEA states that the proposed lattice-type meteorological tower will be 240 feet tall and will be supported by three sets of guy wires. *The Service strongly recommends that tower, including communication and meteorological towers not exceed 199 feet and use construction techniques that do not require guy wires. Please refer to the Guidance document as indicated above and see attachment: Interim Guidelines for Recommendations on Communications Tower siting, Construction, Operation, and Decommissioning.*

DOE Response to Comment 4

As stated above, Clipper has utilized and incorporated the recommendations stated in the Service Guidance document into the planning phase of this project, wherever possible. DOE and Clipper recognize that tall, guy-wired meteorological towers can result in numerous bat and avian mortalities. However, as stated in the DEA, one of the primary purposes of the proposed research project is international certification of the demonstration wind turbine. These certification standards specify the location and height requirements of meteorological towers relative to turbines being certified. Meteorological data is needed to correlate wind velocities seen by the turbine with the power output generated. This correlation is required to predict the rated power output of

the turbine. According to the international standards, meteorological tower height must be within 2% of hub height of the turbine (the hub height will be 75 meters, or 246 feet), and a maximum of 2 to 4 rotor diameters from the turbine, with the accepted practice being 2.5 rotor diameters away from the turbine (about 760 feet in this case). DOE has discussed with Clipper the potential use of the existing meteorological towers associated with the Medicine Bow Wind Project and it has determined that these towers are too far away from the proposed turbine site and not tall enough to be utilized for the proposed research project. While utilization of an existing meteorological tower would result in significant cost savings, it would not meet the technical data standards that are required for this project. In addition, the tower must be 240 ft tall, and a guyed-lattice tower is the only practical and reasonable method that can be used to erect a tower of that height.

USFWS Comment 5

Page 15, paragraph 2: The DEA states that the construction/installation phase would start in December 2004. *Please see our comment above regarding the importance of pre-construction baseline surveys.*

DOE Response to Comment 5.

Please refer to DOE Response to Comment 2.

USFWS Comment 6

Page 21, Paragraph 3. The DEA states that post-construction surveys would consist of methods similar to those used by the SeaWest Foote Creek Rim Wind Plant. These methods include walking transects every two weeks with 250-ft of the tower looking for casualties. *The Service is concerned that mortality surveys, conducted at two week intervals, may not capture the extent of the actual mortalities due to carcasses being scavenged or desiccation of carcasses occurring so that observation become difficult or impossible. Additionally, the description of the proposed Clipper wind turbine states that the rotor and blade diameter is 305 feet and has almost five times the wind-swept area as the small wind turbines at the comparative wind farm. Therefore, we are also concerned that surveys within 250 ft of the tower may not encompass all areas of potential strikes.*

DOE Response to Comment 6.

Based on the review of the Clipper wind turbine and recommendation by Mr. David Young, Jr. (with WEST of Cheyenne, Wyoming), DOE has increased the mortality search distance from 250 ft to 325 ft. This change is expected to be adequate to capture the mortalities associated with the larger wind turbine design.

Based on the recommendation of Mr. Young, the frequency of surveys will be changed from once every two weeks to a time period based on the results of on-site seasonal carcass removal trials that will be conducted at the project site (personal communication between Scott Kamber, TRC-Mariah, and David Young, West, January 7, 2005). The

objective of the carcass removal trials is to estimate the length of time avian and bat carcasses remain in the search areas prior to being removed. Carcass removal eliminates the possibility of detection during mortality surveys and includes removal by predators, scavengers, or other means; it is directly related to level of use of the project area by local scavengers. The carcass removal trials would be conducted utilizing protocol presented in the *Final Report: Avian and Bat Mortality Associated with the Initial Phase of the Foote Creek Rim Windpower Project, Carbon County, Wyoming* (Young et al. 2003). This document can be found at http://www.west-inc.com/wind_reports.php . The trials would be conducted at the beginning of each of the following seasons: spring migration (February 15 – April 15), summer breeding season (April 16 – August 31), fall migration (September 1 – October 31), and winter (November 1 – February 14) and would be used to statistically determine the amount of time between each survey. The carcass removal trials will document scavenger use of the immediate project area and will be used to determine the frequency of mortality surveys. Therefore, the 325-ft survey distance for the mortality surveys are included in the Errata Document for the DEA. In addition, a commitment to conduct carcass removal trials will replace the two-week survey period and is reflected in the Errata Document for the DEA.

USFWS Comment 7

Page 43, 3.2.8.3 Raptors: The DEA states that there are five raptor nests with 2.0 miles of the Project area. However, no monitoring has occurred at these sites to determine historic activity or current status. *The Service recommends that a current raptor survey be conducted within 1.0 mile of the project area to determine raptor use such as nesting, foraging, and migration corridors. This baseline information should be used in project planning.*

DOE Response to Comment 7.

Clipper Windpower has agreed to conduct surveys of current use of the immediate project area by raptors and passerine birds along with the mortality surveys mentioned in the DEA. The current site use surveys will be based on survey methods and protocols used at the nearby Foote Creek Rim Windpower Project. The Errata to the DEA includes a commitment to these current site use surveys.

USFWS Comment 8

Page 43, Upland Game Birds, paragraph 2: the DEA states that two greater sage-grouse leks occur within 2 miles of the project area. However, monitoring of these leks has been sporadic since 1980. Therefore, the WGFD is collecting additional data before declaring these leks are no longer active. *The Service recommends that until such times as the WGHFD declare these leks not active, these leks and adjacent nesting habitat be managed following the guidelines by Connelly et al. 2000 (also known as the WAFWA guidelines).*

DOE Response to Comment 8

DOE has incorporated the greater sage-grouse guidelines presented in Connelly et al. 2000, as much as practical, in the DEA. Please refer to the discussion on greater sage-grouse presented in the DOE Response to Comment 1.

USFWS Comment 9

Page 45, 3.2.8.5: The DEA states that several species of migratory birds may potentially use the project area. However, the DEA does not mention whether construction will occur outside of the nesting season. *The Service is concerned that construction activities, occurring during the nesting season, may result in direct take of active nests and/or young. To avoid such take we recommend that construction and related activities be conducted outside of the nesting season.*

DOE Response to Comment 9

In Section 2.1.2 of the DEA, it states that construction would require approximately 2 months to complete and would start in December 2004. Construction is now scheduled to begin in January, and is anticipated to be complete by the end of March 2005. It is therefore clear (as stated in the DEA) that construction activities would not occur during the nesting season for migratory birds in the project area.

USFWS Comment 10

Page 63, 4.8.1.2, Other Mammals: The DEA indicates that approximately 1.34 bats per wind turbine were killed at SeaWest's Foote Creek Wind Farm located approximately 9 miles south of the proposed project area. It also states that wind turbines at the SeaWest farm are much smaller than the proposed Clipper wind turbine. The Clipper has a wind-swept area that is almost five times larger than the SeaWest turbines. The DEA goes on to state that no bat or avian mortality studies have been conducted at the Platte River Power Authority–Medicine Bow Wind Farm located immediately adjacent to the proposed Clipper wind turbine site. In order to determine potential bat mortalities the DEA makes a comparison between the SeaWest wind turbine and the proposed Clipper wind turbine (10 miles apart). The DEA assumes that all factors were constant between the two project areas except the wind swept area between the two types of turbines. This resulted in a potential of 6.7 bat mortalities per year for the Clipper wind turbine as compared to the 1.34 bats per turbine for the SeaWest turbines. The DEA states that this is a worst case scenario based on limited nesting or roosting habitat located with the project area compared to the Foote Creek Rim area. Finally, the DEA states that mortality surveys (post-construction) would document impacts to bat species. *Please refer to our previous comments regarding the importance of baseline surveys to determine use of the project area by bats and avian species. Use of the project area may also include*

migration corridors. The Service feels strongly that you include migration surveys in your baseline studies. Additionally, data on wildlife use and mortality collected at one wind energy facility may not necessarily be applicable to other sites, as each site possesses discrete site specific information and as a result may have different effects on wildlife. Since wind energy is rapidly expanding into habitats and regions that have not been well studied we strongly encourage a precautionary approach to site selection that includes an in-depth study of the specific area as well as review of existing pertinent information.

DOE Response to Comment 10

Please see DOE Response to Comment 2 presented above for a discussion of the relevance of data from the Foote Creek Rim project, and DOE Response to Comment 7 for information regarding the current site use survey planned by Clipper.

USFWS Comment 11-1

The DEA states that no raptor nests are located within 1-mile of the project area. However, it also states that there are 5 nests/eyries within 2.0 miles of the sites for which no historic occupancy data is available. *Please review to our above comment regarding the importance of a current raptor survey.*

DOE Response to Comment 11-1.

Please refer to DOE Response to Comment 7.

USFWS Comment 11-2

The DEA states it is unlikely that nesting raptors or raptor populations would be impacted by the proposed action, that individual birds could be killed as a result of flying into the rotating turbine blades. *Raptors and other migratory birds can also be killed when they fly into guy wires. Therefore, we encourage you to consider the erecting a meteorological tower that is not guy wired. We also remind you that under the MBTA, take is prohibited.*

DOE Response to Comment 11-2.

Please refer to DOE Response to Comment 4.

USFWS Comment 11-3

The DEA states that the SeaWest wind farm located 9 miles away had few raptor mortalities despite the high use of the area by raptors. *Please refer to our previous comment regarding the use of wildlife data from existing wind farms to predict wildlife impacts for the Clipper wind turbine especially since the SeaWest turbines have a much smaller blade swept area than the Clipper turbine. Information from*

other sources should supplement the baseline information collected for the Clipper turbine, not replace that information.

DOE Response to Comment 11-3

Please refer to DOE Responses to Comments 2 and 7.

USFWS Comment 12

Page 68, 4.8.1.4, Upland Game Birds: The DEA states that the action would result in the loss of less than 10-acres of native vegetation and is unlikely to have an adverse effect on greater sage-grouse, although some birds may be killed by vehicles and the presence of the turbine may adversely affect nesting activities within and near the site. The DEA goes on to discuss measures to minimize effects to sage-grouse. *The Service reminds you that, despite our recommendation to find the greater sage-grouse unwarranted for listing at this time, we continue to have concerns regarding sage-grouse population status, trends and threats, as wall as concerns for other sagebrush obligates. We strongly recommend that habitats be managed following the guidelines by Connelly et al. 200 (also known as the WAFWA guidelines).*

DOE Response to Comment 12

DOE encourages responsible development, and Clipper's plan for construction and operation of the demonstration turbine includes measures to minimize surface disturbance, minimize and avoid impacts to wildlife species, and adhere to applicable management guidelines such as those presented in Connelly et al. (2000). Please refer to DOE Response to Comment 1 for a discussion of the sage grouse issue.

USFWS Comment 13

Page 70, 4.8.1.5 Other Birds: The DEA cites data from the SeaWest wind farm regarding migratory bird mortalities and uses this data to predict bird mortality at the proposed clipper wind turbine. The Service is concerned that data from a site 9 or 10 miles away is used exclusively to predict avian mortalities at the proposed Clipper wind turbine. *We believe that information from other wind farms may serve to supplement data collected from the proposed site, but not replace it, as migratory bird use may differ greatly from site to site. We recommend that you determine seasonal use in the area by migratory birds, including raptors. This may include nesting, roosting, foraging, and migrating.*

DOE Response to Comment 13

Please refer to DOE Responses to Comments 2 and 7 for a discussion of this issue.

USFWS Comment 14

Page 77, 4.10, Irreversible and Irretrievable Commitment of Resources. The DEA states an irreversible and irretrievable commitment of resources would include the loss of productivity (i.e., forage and wildlife habitat) from lands involved in the project... and loss of animals due to mortality. *The Service believes that, through the use and implementation of the Guidance document as discussed above and the collection of science-based data for this proposed project, that Clipper wind turbine project can move forward with little or no adverse effects to wildlife and their habitats.*

DOE Response to Comment 14

DOE appreciates USFWS's review of the proposal Clipper Windpower, Inc., Low Wind Speed Turbine Demonstration Project Environmental Assessment. If you have further questions regarding DOE's response to your comments, please contact Steve Blazek at 303-275-4723. Mr. Blazek will contact you in the near future to coordinate review and comment of the Survey Protocol documents.

Sincerely,

John H. Kersten
Manager

Enclosure